FACULTY OF ENGINEERING & TECHNOLOGY

SYLLABUS

FOR

B.SC. (INFORMATION TECHNOLOGY)  
(Semester: I)

Session 2014-15

GURU NANAK DEV UNIVERSITY
AMRITSAR

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Eligibility:

Admission to Bachelor of Science Information Technology, course shall be open to a candidate who has passed 10+2 examination with 40% marks in aggregate from Punjab School Education Board or equivalent thereto.
### B.Sc. (Information Technology)

#### SCHEME

**Semester – I:**

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<td><strong>Paper – 3</strong></td>
<td>Basic Mathematics &amp; Statistics</td>
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<td><strong>Paper – 4</strong></td>
<td>Communication Skills in English – I</td>
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<td><strong>Paper – 5</strong></td>
<td>Punjabi / Basic Punjabi (Mudhli Punjabi) (Compulsory)</td>
<td>50</td>
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<td><strong>Paper – 6</strong></td>
<td>Practical – PC Computing &amp; C Language – I</td>
<td>75</td>
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B.Sc. (Information Technology) Semester – I

Paper – I: Fundamentals of Computers

Time: 3 Hours Max. Marks: 75

Note: 1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five. All questions carry equal marks.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I

1. Introduction to computer:
Computer System Characteristics, Hardware - CPU, Memory, Input, Output & Storage devices, Organization of Secondary Storage Media, Software - System & Application, Types of processing Batch and On-line.

UNIT-II

2. Operating System Concepts:

UNIT-III

3. MS Word (Word for Windows):

4. MS – PowerPoint:
Introduction to MS Power Point, Power Point Elements, Exploring Power Point Menu, Working with Dialog Boxes, Saving Presentation, Printing Slides, Slide View, Slide Sorter view, notes view, outline view, Formatting and enhancing text formatting.

Text Books:

2. MS–Office 2003, Compiled by SYBIX.
Paper – II: C Programming Part – I

Time: 3 Hours Max. Marks: 75

Note: 1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I

Logic Development Tools: Data Representation, Flow Charts, Problem Analysis, Decision Tree, Decision Table, Pseudo Code and Algorithm

Fundamentals: Character Set, Identifiers and Key Words, Data Types, Constants, Variables, Expressions, Statements, Symbolic Constants.

UNIT-II


Data Input and Output: Preliminaries, single character Input, single character output, entering input data, more about scanf function, writing output data more about printf functions, gets and puts functions, interactive programming.

UNIT-III

Control Statements: Preliminaries, While, Do–While and For statements, Nested loops, If–else, Switch, Break – Continue statements.

Functions: Brief overview, defining, accessing function, passing arguments to a function, specifying argument data types, function prototypes, recursion.

Arrays: Defining and processing as array, passing array to a function, multi – dimensional arrays.

References:

1. Programming in C : Schaum Outlines Series.
3. Let Us C : Yashwant Kanitkar
Paper – III: Basic Mathematics and Statistics

Time: 3 Hours  Max. Marks: 75

Note: 1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five. All questions carry equal marks.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I


UNIT-II

Differentiation and Integration: laws of derivative chain rule differentiation using log, repeated derivatives, derivatives of implicit functions. Integration of algebraic, logarithmic and exponential functions, integration of functions using partial fraction (simple form using properties), integration of functions by parts, definite integral.

UNIT-III

Probability and Statistics: Mathematical and statistical probability, axiomatic approach to probability, Law of addition of probability, dependence of events, Baye's Theorem.

Matrices and Determinants: Introduction and definition of matrices, types of matrices, matrix addition and scaler multiplication, transpose and inverse of matrix, solution of system of linear equations, definition and properties of determinants (statement only), characteristic polynomial, eigen values, nature of eigen values, certain types of matrices, Cayley – Hamilton theorem.

References:

B.Sc. (Information Technology) Semester – I

PAPER–IV: COMMUNICATION SKILLS IN ENGLISH – I

Time: 3 Hours Max. Marks: 50

Course Contents:

1. **Reading Skills**: Reading Tactics and strategies; Reading purposes–kinds of purposes and associated comprehension; Reading for direct meanings; Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/expressions.

**Activities:**
- a) Active reading of passages on general topics
- b) Comprehension questions in multiple choice format
- c) Short comprehension questions based on content and development of ideas

2. **Writing Skills**: Guidelines for effective writing; writing styles for application, resume, personal letter, official/business letter, memo, notices etc.; outline and revision.

**Activities:**
- a) Formatting personal and business letters.
- b) Organising the details in a sequential order
- c) Converting a biographical note into a sequenced resume or vice-versa
- d) Ordering and sub-dividing the contents while making notes.
- e) Writing notices for circulation/boards

**Suggested Pattern of Question Paper:**

The question paper will consist of five skill–oriented questions from Reading and Writing Skills. Each question will carry 10 marks. The questions shall be phrased in a manner that students know clearly what is expected of them. There will be internal choice wherever possible.

1. Multiple choice questions on the language and meanings of an unseen passage.  
2. Comprehension questions with short answers on content, progression of ideas, purpose of writing etc. of an unseen passage.  
3. Personal letter and Official/Business correspondence  
4. Making point-wise notes on a given speech/technical report OR Writing notices for public circulation on topics of professional interest  
5. Do as directed (10x1= 10 Marks) (change of voice, narration, combination of 2 simple sentences into one, subject-verb agreement, using appropriate tense, forms of verbs.

**Recommended Books:**
2. The Written Word by Vandana R Singh, Oxford University Press
Paper-V: भौगली (समस्याओं)

पत्र-सूत्र अवद कि पत्र-पुस्तकों

1. विश्लेषक इल्म (विश्लेषक उपमान-विश्लेषक इल्म का मुद्रित),
   (मैर. डा. गुडिनग सिंह, पू. भरत गुडिनग सिंह ग्रंथदेव), गुडिनग टेक्स् प्रेक्षेततमिती, अभियुक्तमात्र।
   इल्म: लघुभाषा बुधदेव, बुधदेव गंगला ने हि इल्म, राजी विड़िया, लघुभाषा द्वारकादेव
   ने हि इल्म, देखा : हि टॉपीय वंदन।
2. प्रश्नों के भाग बहमील (घटकक्ष वाचकी),
   बुधदेव टेक्स् प्रेक्षेततमिती, अभियुक्तमात्र।
   इल्म: वे.आ.सतगुरीला, घड़े नागर अनी थे, मेंग सिंह, तिलकसम्बन्ध लघुद, 
   लघुद मेंट सिंह।
3. पैरू उधर
4. लघुद बहमील दे हूंदाल।
5. (व)भौगली युली विल्लुस : हूंदाल आला, हूंदाल बहमील दे विल्लुस, जलद, विपुलल, मुदा।
   (अ)भौगली विल्लुस : बममा दा टवमाली तुध, बममा अदे धु-धुमा दा भौंद, भौगली 
   विल्लुस दे भौंद-विल्लुस।
6. हूंद बममा दा अविभाज्य
   (व) पदिकी बममा दे उद हूंदे
   (अ) जूती बममा दे उद हूंदे

अंक-लेख अवद पतीथिघम लघुद उपाधियुं:

1. विप्रे विल्लुस दा धुम नंद दुममा दिल्ला दममा (दे विल्लुस विद्वें) ।
2. वे थूवन विल्लुस : धुम, विल्लुस-दममा, मध्यमाला दे वाट
3. पैरू उधर : डेंग विल्लुस विद्वें विमे विद्वें पैरू विल्लुस रघुद द्विद विद्वें नाखे।
4. पैरू दे बे धुम पहुंच भौगली दे हूंदाल।
5. तेहे 5 हूंदे विल्लुस विल्लुस दे विमे हूंदाल हूंदाल बुधदेव बुधदेव।
6. तेहे 6 विद्वें धुम बममा दे पदिकी बममा अवद धुमी बममा इसे 
   अविभाज्य, भौंद अवद महीनीलिम घड़े धुम धुम पूंछे नाखे।
   मिलां विद्वें विल्लुस विद्वें दे दे भूंदाल देह देहें।

5×2=10 अंक
PAPER – V: ਪ੍ਰਸ਼ਟਿ ਪ੍ਰਸ਼ਨਾਂ
(In lieu of Compulsory Punjabi)

ਪਾਠ-ਬੂਧ

1. ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਪ੍ਰਸਤੁਤ ਤੌਰ ਤੇ ਅਖਾਦਾ
   ਗੁਰਮੂਖੀ ਸਿੰਘ
   ਗੁਰਮੂਖੀ ਸਿੰਘਕਰਨ ਦਾ ਕਲਵਰ ਵੇਦੀ (ਦੋ ਔਰ ਸੇਂਟਰਾਲ)

2. ਗੁਰਮੂਖੀ ਆਦਵੇਬਾਦੀ
   ਮੂਰਤ ਦੀ ਇੱਕ ਅੱਠ ਇੱਕ ਸੌਂਤਰੀ
   ਹਿੰਦੂ ਇੱਕ ਅੱਠ ਇੱਕ ਸੌਂਤਰੀ

3. ਪ੍ਰਸ਼ਨਾਂ ਸਾਹਿਤ-ਗਟਰ ਅੱਠ ਖੁਬਾ
   ਸਾਹਿਤ ਸਾਹਿਤ
   ਹਿੰਦੂ ਇੱਕ ਦੋ ਮੁੱਖ ਸਾਹਿਤ

ਬੁਰੀਤਾਨੀ ਅੱਠ ਬੀਜਾਂ:

1. ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਪ੍ਰਸਤੁਤ ਤੌਰ ਤੇ ਅਖਾਦਾ ਵਾਰਤਾ, ਗੁਰਮੂਖੀ ਸਿੰਘਕਰਨ ਦਾ ਕਲਵਰ ਵੇਦੀ, ਗੁਰਮੂਖੀ ਸਿੰਘਕਰਨ ਦਾ ਕਲਵਰ ਵੇਦੀ;
   ਪ੍ਰਵਾਸੀ ਅੰਤਰ, ਅੰਤਰ ਵਸ, ਮੂਰਤ ਲਗਭਗ (੥ ਅਤੇ ੭), ਲਗਭਗ ਅੱਠ ਸੇਂਟਰਾਲ, ਪ੍ਰੇਦ ਹਿੰਦੂ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ, ਪ੍ਰੇਦਾਸ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ, ਨਾਨਕ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ, ਨਾਨਕ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ, ਨਾਨਕ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ;

2. ਗੁਰਮੂਖੀ ਆਦਵੇਬਾਦੀ ਅੱਠ ਇੱਕ ਸੌਂਤਰੀ; ਮੂਰਤ ਦੀ ਇੱਕ ਅੱਠ ਇੱਕ ਸੌਂਤਰੀ (ਸਮੂਹ-ਦੀੱਚਾ ਮੂਰਤ); ਮੂਰਤ ਅੱਠ ਸੇਂਟਰਾਲ;
   ਹਿੰਦੂ ਇੱਕ ਅੱਠ ਇੱਕ ਸੌਂਤਰੀ; ਪ੍ਰੇਦ ਹਿੰਦੂ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ (੧੨, ਡ੍ਰ, ੬) ਦੇ ਕਲਵਰ; ਸੰਯੁਕਤ ਹਿੰਦੂ ਸਿੰਘਕਰਨ ਦੇ ਕਲਵਰ;

3. ਪ੍ਰਸ਼ਨਾਂ ਸਾਹਿਤ-ਗਟਰ ਅੱਠ ਖੁਬਾ: ਸਾਹਿਤ ਸਾਹਿਤ; ਹਿੰਦੂ ਸਾਹਿਤ (ਸ੍ਰੀ ਕਰਮਾਲ); ਮੂਰਤ ਅੱਠ ਹਿੰਦੂ ਸਾਹਿਤ (ਸ੍ਰੀ ਕਰਮਾਲ); ਹਿੰਦੂ ਸਾਹਿਤ ਮੂਰਤ ਹਿੰਦੂ ਸਾਹਿਤ (ਸ੍ਰੀ ਕਰਮਾਲ); ਪ੍ਰਸ਼ਨਾਂ ਸਾਹਿਤ
   ਕਲਵਰ; ਹਿੰਦੂ-ਪੰਜਾਬੀ, ਹਿੰਦੂ ਕਲਵਰ-ੱਤਰ ਕਲਵਰ; ਹਿੰਦੂ ਇੱਕ ਦੋ ਪ੍ਰਾਪਤੀਕ ਸਾਹਿਤ; ਧੱਤ-ਪੀੜਾ ਅੱਠ
   ਮਾਤਾਰਜੀ ਰਾਸੀ ਮੰਗਾਣਾਹਾਰ।
अंक-बंक अनुसार पद्धतिजनक सामग्री वर्तमान:

1. पहले पृष्ठदारियों पर प्रशंसक चर्चा अनुसार गुजराती लिखी दी घटकात अन्त मध्य राश संबंधित 5-5 अंकों के साथ संकेतन पूमत पृंग्द नाहीं तरी. अंक-बंक अंकों दिब-दिव मंड-डंड मंड-डंड करत्यास दंडेच पूमत दिलेले व्हीडी कार्याची स्वतः नाही.

2. पूर्ण पृष्ठदारियों पर गुजराती मानववादी अन्त मध्य राश संबंधित 5-5 अंकों के सिद्ध संकेतन पूमत पृंग्द नाहीं तरी. अंक-बंक अंकों दिब-दिव मंड-डंड मंड-डंड करत्यास दंडेच पूमत दिलेले व्हीडी कार्याची स्वतः नाही.

3. दूसरे पृष्ठदारियों पर प्रशंसक घटक-घटक अनुसार वस्तु राश राश संबंधित 5-5 अंकों के सिद्ध संकेतन पूमत पृंग्द नाहीं तरी. अंक-बंक अंकों दिब-दिव मंड-डंड मंड-डंड करत्यास दंडेच पूमत दिलेले व्हीडी कार्याची स्वतः नाही.

4. तीसरे पृष्ठदारियों पर प्रशंसक घटक-घटक अनुसार राश संबंधित दिब-दिव अंक एवं एंग्र (अपडेट) पूमत पृंग्द नाहीं

5. पूमत अंक चर्चा अनुसार दृश्यात व्हीडी नाही.
B.Sc. (Information Technology) Semester – I

Paper –VI: (Practical)
PC Computing and C Language-I

Time: 3 Hours
Max. Marks: 75

Practical – C Language Part I & PC Computing
### B.Sc. (Information Technology) Semester – II

#### SCHEME

**Semester – II:**

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<td>Communication Skills in English – II (Th.35+Pr.15)</td>
<td>50</td>
</tr>
<tr>
<td><strong>Paper – 2</strong></td>
<td>Punjabi / Basic Punjabi (Mudhli Punjabi) (Compulsory)</td>
<td>50</td>
</tr>
<tr>
<td><strong>Paper – 3</strong></td>
<td>Principles of Digital Electronics</td>
<td>75</td>
</tr>
<tr>
<td><strong>Paper – 4</strong></td>
<td>C Programming Part – II</td>
<td>75</td>
</tr>
<tr>
<td><strong>Paper – 5</strong></td>
<td>Numerical Methods &amp; Statistical Techniques</td>
<td>75</td>
</tr>
<tr>
<td><strong>Paper – 6</strong></td>
<td>Practical – C Language – II</td>
<td>75</td>
</tr>
</tbody>
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B.Sc. (Information Technology) Semester – II

PAPER – I: COMMUNICATION SKILLS IN ENGLISH – II

Time: 3 Hours

Max. Marks: 50
Theory Marks: 35
Practical Marks: 15

Course Contents:

1. **Listening Skills:** Barriers to listening; effective listening skills; feedback skills. Attending telephone calls; note taking.
   **Activities:**
   a) Listening exercises – Listening to conversation, News and TV reports
   b) Taking notes on a speech/lecture

2. **Speaking and Conversational Skills:** Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics.
   The study of sounds of English, stress and intonation
   Situation based Conversation in English
   Essentials of Spoken English
   **Activities:**
   a) Making conversation and taking turns
   b) Oral description or explanation of a common object, situation or concept
   c) Giving interviews

Suggested Pattern:
The question paper will consist of seven questions related to speaking and listening skills. Each question will carry 5 marks. The nature of the questions will be as given below:
Two questions requiring students to give descriptive answers.
Three questions in the form of practical exercises requiring students to give an appropriate response to a question, a proposal, a proposition, an invitation etc. For example, the paper setter may give a proposition and ask the students to agree or disagree with it or introduce a character giving invitation and ask the students to accept or refuse it etc.
Two questions requiring students to transcribe simple words in IPA symbols, marking stress and marking intonation.

Practical /Oral Testing

Marks: 15

Course Contents:
1. Oral Presentation with/without audio visual aids.
2. Group Discussion.
3. Listening to any recorded or live material and asking oral questions for listening comprehension.

Questions:
1. Oral Presentation will be of 5 to 10 minutes duration. (Topic can be given in advance or it can be of student’s own choice). Use of audio visual aids is desirable.
2. Group discussion comprising 8 to 10 students on a familiar topic. Time for each group will be 15 to 20 minutes.

Note: Oral test will be conducted by external examiner with the help of internal examiner.
B.Sc. (Information Technology) Semester – II

PAPER-II: भौतिकी (सन्तानी)

भाग : 3 पढ़िए
लघु अंश : 50

प्रथम-माध्यमिक कक्षा (विविधविभाग द्वारा समाधानदीर्घकु च के संग्रह)
(मैथुन भ. माधव सिंह, छोटा भरत सिंह व विनोबा महान, कामना प्रकाशन, भारत, 2007)
लेख : मराठी के संस्कृत माधव, अंकुश, आशुक र गांउ दे सुमथ, वर्द्धि रतन भटे प्रिंटवेलट, भारतीय अध्ययन।

2. भौतिकी दे अनुसार बस्तिकार (संस्कृत गांव) बांग्ला र गांव दे कृष्णदीपिका, भारत, 2007
लेख : महामूर्ति गुरुवार, गुरुवार माधव, धारवाद माधव, बस्तिकार माधव, बस्तिकार बेंगल।

3. संस्कृत-भौतिकी अंते संस्कृत तत्त्व : पवित्रमल, भरित्य संस्कृत

4. संस्कृत भौतिकी

5. भौतिकी दे संस्कृत

6. भौतिकी दे भौतिकी दे हिंदी

7. भौतिकी दे हिंदी भौतिकी

अंतिम शेष अंते पवित्रमल रही उत्तरांकित

1. विभिन्न दिनिका किया मान सं दिनिका दिन बमु (दे दिन दिन) ।

2. दिनिका दिन : देश दिन, विपरीत दिन, बमु मान दिन, लेख विपरीत दिन दु के सेट ।

3-4. 3-4 दिनिका दिन दिनिका दिनिका दे मान दे दिनिका दे दिनिका दे मान।

5. भौतिकी दे संस्कृत : विभिन्न हिंदी दिनिका दिनिका दिनिका दिन दिनिका दिनिका दिनिका दिनिका दिनिका दिनिका दिनिका ।

6. भौतिकी दे दे दिन दिन दिन दिन मान दे हिंदी

7. संस्कृत 7 दिनिका दे भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते भौतिकी अंते ।

5+5= 10 अंत
भाषा-बृह

1. भाषावी सब-बहदव
मुक्तबद  अधे  भिमदल सब-बहदव
सितं ददने स भाषावी सब-बहदव  
20 अंक

2. भाषावी बाह-बहदव
मायाक बाह : विसंभर
मुक्तबद बाह : विसंभर
भिमदल बाह : विसंभर
भाषावी बाह से ददने से डिडिक भाषावी बृहदा।
15 अंक

3. भुवनकांती भाषावी
भिंदी बेटुव
पैठ उच्चता
अधार अधे मुहुघुने
15 अंक

पृष्ठित आदे बीम:

1. भाषावी सब-बहदव : मुक्तबद सब-बहदव ; साधा सब-बहदव (सितं सेठ सजा) ; देवने सब-बहदव/भुथ-तुज़ी
(सितं युड पाब/आह बहदव), भिमदल सब-बहदव सी बहदव/मितमल ; बालुक बाही (सितं छुट-बहदव),
भिमदल बाही (सितं हंगला), भाषावी सब-बहदव उच्च; भुवनकांती अध, विसंभर/मधुरिवर्त विसंभर दे बहदव; सितं ददने स भाषावी सब-बहदव; बुंड़, महीनियं, भाषावी, भिंदी राज मौरिपुट।

2. भाषावी बाह-बहदव : बहदव अथ बिसंभर; साधा बाह, विसंभरी, भुमालिवव, अगिनात्रवव; मुक्तबद अधे भिमदल बाह सींगा विसंभर ; मुक्तबद अधे भाषावी बृहदा; भाषावी बाह; बालुक बाही (अध/सजा) बेटुव सी ददने से डिडिक भाषावी/भिन्निवर्त बृहदा; बाह डिच, भाॉर डिच, मेठी डिच, मेठी धार/मितमल डिच, विसंभर डिच, याविभव वर्त डिच, डिडिवर्त राज आदि।

3. दिम पृष्ठित डिच दिंदी बेटुव (सितं/बहदवी), पैठ उच्चता अधे मधुरिवर्त भुवनकांती से ददने
वाही डिडिक भाषावी सी बाषावी बेटुव हुं विसंभर माधेगा।
1. पहिले पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन उच्चतर जनर हस्त मधुबन 5-5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

2. हिंदी वक्तृत्व से मधुबन डांस जब-जबतर 5-5 अंकों देने दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

3. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5-5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

4. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

5. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5-5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

6. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

7. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5-5 अंकों में इंते दिग्दर्शन धारण करें। अंकों से प्रत्येक तिथि-तिथि हों-हों भने-भने अंकों में भेजे धारण करें जिनको साधारण देने है।

8. पृष्ठित हिंदी पेशकश मधुबन ढांचे मधुबन 5 अंकों में भेजे धारण करें।

Time: 03 Hours:  
M. Marks: 75

Note: 1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five. All questions carry equal marks.
2. The students can use only non-programmable & non-storage type calculator.

UNIT-I
Number System: Introduction, number conversion system, binary arithmetic, representation of signed binary numbers, 1’s and 2’s complement, Codes: straight binary code, BCD Code, Excess3 Code, Grey Code ASCII, Integer and floating point representation

Logic Gates and Boolean Algebra: Logic gates, Universal Gates, Boolean algebra and Minimization techniques, canonical forms of Boolean expressions, K-Map

UNIT-II
Combinational Circuits: Adder, Subtractor, Multiplexer, Demultiplexer, Decoder, Encoder

Sequential Circuits: Flip-flops, clocks and timers, registers, counter

UNIT-III
Semiconductor memories: Introduction, Static and dynamic devices, read only & random access memory chips, PROMS and EPROMS Address selection logic. Read and write control timing diagrams for ICs

References:

1. Integrated Electronics by Millman, Halkias McGraw Hill.
Paper – IV: C Programming Part–II

Time: 3 Hours  
Max. Marks: 75

Note:  
1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five. All questions carry equal marks. 
2. The student can use only Non–programmable & Non–storage type Calculator. 

UNIT-I

Strings: String declaration, string functions and string manipulation. 

Pointers: Fundamentals, pointer declaration, passing pointers to a functions, pointer and one dimension arrays, operation on pointers, pointers & multi–dimensional arrays, passing functions to other functions, more about declarations. 

UNIT-II

Storage classes: Automatic, external and static variables. 

Structures & Unions: Defining and processing a structure, user defined data types, structures and pointers, passing structures to functions, self referential structure, unions. 

UNIT-III

Data Files: Opening, closing, creating and processing of data files. 

Programming exercises of above concepts 

References:
1. Programming in C : Schaum Outlines Series. 
Paper – V: Numerical Methods and Statistical Techniques

Time: 3 Hours
Max. Marks: 75

Note: 1. Eight questions are required to be set giving equal weightage to all the units. The candidates will have to attempt any five. All questions carry equal marks.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I

Introduction:
1. Numerical Methods, Numerical methods versus numerical analysis, Errors and Measures of Errors.
3. Simultaneous Solution of Equations, Gauss Elimination Method, Gauss Jordan Method,

UNIT-II

6 Least square fit linear trend, Non–linear trend.
Y = ax^b
Y = ab^x
Y = ae^x
Polynomial fit: Y = a+bx+cn^2

UNIT-III

Statistical Techniques:
1. Measure of Central Tendency, Mean Arithmetic, Mean Geometric, Mean Harmonic, Mean, Median, Mode.
2. Measure of Dispersion, Mean Deviation, Standard Deviation, Co–efficient of Variation,

Books Recommended:
Practical- Implementation of Numerical Methods and Statistical Techniques Using C Language
Semester – III:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Subjects</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Object Oriented Programming Using C++</td>
<td>75</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Data Structure</td>
<td>75</td>
</tr>
<tr>
<td>Paper – III</td>
<td>System Analysis &amp; Design</td>
<td>75</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>* Environmental Studies – I (Compulsory)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – V</td>
<td>Programming Lab – I (C++, Programming Language)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – VI</td>
<td>Programming Lab – II (Data Structure)</td>
<td>25</td>
</tr>
</tbody>
</table>

* Marks of Paper EVS will not be included in the Grand Total.
Paper – I: Object Oriented Programming Using C++

Time: 3 Hours

M. Marks: 75

Note: 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 75.

2. The student can use only Non-programmable & Non-storage type Calculator.

UNIT-I

C++ Programming Basics Basic Program Construction, Output using cout, Preprocessor Directive, Comments, Integer Variables, Declaration and Definitions, Character Variables, Input using cin, Type float, Manipulators, Unsigned data types, Type conversions, Arithmetic Operators, Library functions.


UNIT-II

Structures Defining and processing a structure, user defined data types structure, Enumerated Data Types.

Functions Brief overview defining, Accessing function, Passing Arguments to functions, Returning values from functions, Overloaded functions, Inline functions, Default Arguments, Variables and Storage Classes: Automatic Variables, External Variables, Static Variables, Storage.

Object & Classes A simple Class: Classes and objects, Specifying the class Using the class, C++ Objects as physical Objects, C++ Objects as Data types, Constructions, Objects as Functions Arguments: Overloaded Constructors, Member Functions Defined Outside the Class, Objects as Arguments, Returning Objects from Functions, Static Class Data.

UNIT-III

Arrays: Defining and processing an array, passing array to a function, multi – dimensional arrays, Strings: String declaration, string functions and string manipulation.


Inheritance Derived Class and Base Class, Derived Class Constructors, Overriding Member Functions, Inheritance in the English Distance Class, Class Hierarchies, Public and Private Inheritance, Levels of Inheritance, Multiple Inheritance.

Books:
1. C++ & Graphics by Vijay Mukhi’s
2. Turbo C++ by Robert Lafore.
B.Sc. (Information Technology) Semester – III

Paper – II: Data Structure

Time: 3 Hours

M. Marks: 75

Note: 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 75.

2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I

Basic Data Structure: Introduction to elementary Data Organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time – Space trade off between Algorithms.

Arrays: Array Defined, Representing Arrays in Memory, Various Operations on Linear Arrays, Multidimensional Arrays.

UNIT-II

Linked Lists Types of Linked Lists, Representing Linked Lists in Memory, Advantages of using Linked Lists over Arrays, Various Operations on Linked Lists.

Stacks: Description of STACK structure, Implementation of Stack using Arrays and Linked Lists, Applications of Stacks – Converting Arithmetic expression from infix notation to polish and their subsequent evaluation, Quicksort Technique to sort an array.

Queues: Description of queue structure, Implementation of queue using arrays and linked lists, Description of priorities of queues, Dequeues.

UNIT-III

Trees: Description of Tree Structure and its Terminology, Binary Trees and Binary Search Trees and their representation in Memory

Graphs: Description of Graph Structure, Implement Graphs in Memory using Adjacency Matrix, Path Matrix.


References:
2. Tanenbaum, Data Structure using C.
B.Sc. (Information Technology) Semester – III

Paper – III: System Analysis & Design

Time: 3 Hours  M. Marks: 75

Note:  1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 75.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT I
System Planning and Analysis: Introduction to systems development life cycle and role of different stages.
Requirement analysis, Problem definition, Feasibility Study and its importance.
Information Gathering Tools, Cost Benefit Analysis, Role and Responsibilities of System Analyst.

UNIT II
System Implementation: System testing, Quality assurance, Documentation tools, Managing system implementation.

UNIT III
System Testing: Introduction to testing and its types
System Maintenance: Concept of maintenance and its importance, types of maintenance

References:
PAPER-IV: ENVIRONMENTAL STUDIES-I

Theory Lectures: 1.5 Hours/ Week  Max. Marks: 50
Time of Examination: 3 Hours

Section A (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying five marks. Answer to any of the questions should not exceed two pages.

Section B (20 Marks): It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying ten marks. Answer to any of the questions should not exceed four pages.

Section C (15 Marks): It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

1. The multidisciplinary nature of environmental studies:
   • Definition, scope & its importance.
   • Need for public awareness.

2. Natural resources:
   • Natural resources and associated problems:
     a) Forest Resources: Use of over exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
     b) Water Resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
     c) Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
     d) Food Resources: World food problems, change caused by agriculture and overgrazing, effects or modern agriculture, fertilizer-pesticide problem, salinity, case studies.
     e) Energy Resources: Growing of energy needs, renewable and non-renewable energy resources, use of alternate energy sources, case studies.
     f) Land Recourses: Land as a resource, land degradation, soil erosion and desertification.
        • Role of an individual in conservation of natural resources.
        • Equitable use of resources for sustainable lifestyles.

3. Ecosystem:
   • Concept of an ecosystem.
   • Structure and function of an ecosystem.
   • Producers, consumers and decomposers.
   • Energy flow in the ecosystem.
   • Ecological succession.
   • Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following ecosystems:
  a. Forest ecosystem
  b. Grassland ecosystem
  c. Desert ecosystem
  d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

4. Social Issues and Environment:
• From unsustainable to sustainable development.
• Urban problems related to energy.
• Water conservation, rain water harvesting, watershed management.
• Resettlement and rehabilitation of people; its problems and concerns. Case studies.
• Environmental ethics: Issues and possible solutions.
• Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
• Wasteland reclamation.
• Consumerism and waste products.
• Environmental Protection Act:
  ➢ Air (prevention and Control of Pollution) Act.
  ➢ Water (prevention and Control of Pollution) Act.
  ➢ Wildlife Protection Act.
  ➢ Forest Conservation Act.
• Issues involved in enforcement of environmental legislation.
• Public awareness.

References/Books:
3. Down to Earth, Centre for Science and Environment, New Delhi.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
B.Sc. (Information Technology) Semester – III

Paper – V
(Programming Lab-I)

Lab – I: Based on C++, Programming Language 50 Marks

Paper – VI
(Programming Lab-II)

Lab – II: Data Structure 25 Mark
**B.Sc. (Information Technology) Semester – IV**

**SCHEME**

**Semester – IV:**

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Subjects</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Database Management System &amp; Oracle</td>
<td>75</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Internet Applications</td>
<td>75</td>
</tr>
<tr>
<td>Paper – III</td>
<td>JAVA &amp; Web Designing</td>
<td>75</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>* Environmental Studies – II (Compulsory)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – V</td>
<td>Compiler Design</td>
<td>75</td>
</tr>
<tr>
<td>Paper – VI</td>
<td>Programming Lab – I (Oracle)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – VII</td>
<td>Programming Lab – II HTML &amp; (JAVA)</td>
<td>50</td>
</tr>
</tbody>
</table>

* Marks of Paper EVS will not be included in Grand Total.
B.Sc. (Information Technology) Semester – IV

Paper – I: Database Management System and Oracle

Time: 3 Hours

M. Marks: 75

Note : (i) In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks.

(ii) The maximum marks of the paper is 75.

(iii) As per as possible except in the Computer language papers no programmer may be asked in theory papers. Emphasis should be on algorithm development.

(iv) The student can use only Non–programmable & Non–storage type Calculator.

Practical marks will include the appropriate weightage for proper maintenance of Lab record.

UNIT-I
Introduction to Data, fields, record, file, database, database management system, structure of database system, advantage & disadvantage, levels of database system, Relational model, Hierarchical model, Network model, comparison of these model, E–R diagram, different keys used in a relations system, SQL.

UNIT-II

DBA, responsibilities of DBA, Relational form like 1NF, 2NF, 3NF, BCNF, 4th NF, 5th NF, DBTG, Concurrency control and its management, protection, security, recovery of database.

UNIT-III

Oracle
SQL * PLUS: Introduction to Oracle 8, SQL–DDL, DML, DCL, Join methods & sub query, Union Intersection, Minus, Tree Walking, Built in Functions, Views, Security amongst users, Sequences, Indexing Object Oriented Features of Oracle 8.0.


References:

Introduction to Database by C.J.Date
Database Management System by B.C.Desai
Database Concept by Korth
Oracle–Developer– 2000 by Ivan Bayross
Database System Concepts & Oracle(SQL/PLSQ)–AP Publishers
UNIT-I

Introduction: About internet and its working, business use of internet, services effect by internet, evaluation of Internet, Internet Service Provider (ISP) windows environment for dial up networking (connecting to internet), audio on internet, internet addressing (DNS) and IP addresses.

E-Mail Basic Introduction, advantage and disadvantage, structure of an email message, working of e-mail (sending and receiving messages), managing email (creating new folder, deleting messages, forwarding messages, filtering messages, implementation of outlook express.

UNIT-II

Internet protocol Introduction, tile transfer protocol (FTP), Gopher, Telnet, other protocols like HTTP and TCP/IP.

WWW introduction, working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark), web designing using FFTML, DTTML with programming techniques.

UNIT-III

Search engine: About search engine, component of search engine, working of search engine, difference between search engine and web directory.

Internet and extranet: Introduction, application of intranet, business value of intranet, working of intranet, role of extranet, working of extranet, difference between intranet and extranet.
B.Sc. (Information Technology) Semester – IV

Paper – III: Java & Web Designing

Time: 3 Hours

Max. Marks: 75

Note: 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 75.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I


UNIT-II

Introduction to Java: Control Statements, Operators Data Types.

UNIT-III

Introduction to OOPS: Classes & Methods, constructors, Inheritance & Polymorphism. Packages & Interfaces, Multithreading in Java, Exception Handling, String handling in Java & Input/Output in Java

Introduction to Web Designing through HTML

References:

B.Sc. (Information Technology) Semester – IV

PAPER–IV: ENVIRONMENTAL STUDIES-II

Theory Lectures: 1.5 Hours/ Week  Max. Marks: 50
Time of Examination: 3 Hours

Section A (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying five marks. Answer to any of the questions should not exceed two pages.

Section B (20 Marks): It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying ten marks. Answer to any of the questions should not exceed four pages.

Section C (15 Marks): It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

1. Biodiversity and its Conservation:
   - Definition: Genetic, species and ecosystem diversity.
   - Biogeographical classification of India.
   - Value of Biodiversity: Consumptive use; productive use, social, ethical, aesthetic and option values.
   - Biodiversity of global, National and local levels.
   - India as mega-diversity nation.
   - Hot-spots of biodiversity.
   - Threats to Biodiversity: Habitat loss, poaching of wild life, man wildlife conflicts.
   - Endangered and endemic species of India.
   - Conservation of Biodiversity: In situ and Ex-situ conservation of biodiversity.

2. Environmental Pollution:
   - Definition, causes, effects and control measures of:
     a) Air Pollution
     b) Water Pollution
     c) Soil Pollution
     d) Marine Pollution
     e) Noise Pollution
     f) Thermal Pollution
     g) Nuclear Hazards
     h) Electronic Waste
   - Solid Waste Management: Causes, effects and control measures of urban and industrial wastes.
   - Role of an individual in prevention of pollution.
   - Pollution case studies.
   - Disaster Management: Floods, Earthquake, Cyclone and Landslides.
3. **Human population and the environment**
   - Population growth, variation among nations.
   - Population explosion-Family welfare programme.
   - Environment and human health.
   - Human rights.
   - Value education.
   - HIV/AIDS.
   - Women and child welfare.
   - Role of information technology in environment and human health.
   - Case studies.
   - Road Safety Rules & Regulations: Use of Safety Devices while Driving, Do’s and Don’ts while Driving, Role of Citizens or Public Participation, Responsibilities of Public under Motor Vehicle Act, 1988, General Traffic Signs.
   - Accident & First Aid: First Aid to Road Accident Victims, Calling Patrolling Police & Ambulance.

4. **Field Visits:**
   - Visit to a local area to document environmental assets—river/forest/grassland/hill/mountain.
   - Visit to a local polluted site—Urban/Rural/Industrial/Agricultural.
   - Study of common plants, insects, birds.
   - Study of simple ecosystems—pond, river, hill slopes etc.

**Note:** In this section the students will be required to visit and write on the environment of an area/ ecosystem/village industry/disaster/mine/dam/agriculture field/waste management/hospital etc. with its salient features, limitations, their implications and suggestion for improvement.

**References/Books:**
3. Down to Earth, Centre for Science and Environment, New Delhi.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
B.Sc. (Information Technology) Semester – IV

Paper – V: Compiler Design

Time: 3 Hours

M. Marks: 75

Note : 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 75.
   2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT-I
Basics of Compilers and different phases of compiler design
Detailed study of Lexical Analysis and Syntax Analysis

UNIT-II
Symbol Table Handling
Symbol table contents, operations on Symbol Tables, Organizations of Symbol Tables.
Storage Management
Static Storage Management, Dynamic Storage Management.
Code Generation
Code Generator, Code generation of simple programming constructs.

UNIT-III
Code Optimization
Local optimization, global optimization, loop optimization
Types of Compiler- Incremental compilers and Cross Compilers.

References:
Lab – I:  Oracle  

Lab – II:  HTML & Java
### B.Sc. (Information Technology) Semester – V

#### SCHEME

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<thead>
<tr>
<th>Paper No.</th>
<th>Subjects</th>
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<tr>
<td>Paper – I</td>
<td>Computer Networks</td>
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<tr>
<td>Paper – II</td>
<td>Operating System</td>
<td>100</td>
</tr>
<tr>
<td>Paper – III</td>
<td>E-Business</td>
<td>100</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>Lab – I (Computer Networks)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – V</td>
<td>Lab – II (Operating System)</td>
<td>50</td>
</tr>
</tbody>
</table>
B.Sc. (Information Technology) Semester – V

Paper – I: Computer Networks

Time: 3 Hrs. M. Marks: 100

Instructions for the Paper Setters:-
Note : 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 100.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT – I
Basic concepts of Computer Networks, Client Server Network topologies.

OSI Reference Model, TCP/IP Model Comparison and Critiques, Concepts of Routers, bridges, Repeaters, Gateways.

UNIT – II

Transmission Media: – Twisted Pair, Co–axial Cable, Baseband, Broadband, Fibre optics, Satellite, Wireless Transmission, Telephone System

The Data link Layer: Design Issues, Error Detection and Correction, Data Link Sliding Window Protocols.

UNIT – III
IEEE Standard 802 for LAN’s and MAN’s Routing Algorithm.

Internetworking, Network Security.

References:
1. Tanenbaum A.S. ‘Computer Network’, PHI.
2. Stalings W., ‘Data and Computer Communications’, PHI.
B.Sc. (Information Technology) Semester – V

Paper – II: Operating System

Time: 3 Hrs.                          Max. Marks: 100

Instructions for the Paper Setters:-

Note: 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 100.

2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT – I

Introduction:
Definition, evolution, need, early system, function, buffering spooling, single user, multiuser, multiprogramming, multiprocessing, multitasking, multithreading, batch processing, real time, time systems, time sharing systems, security, protection.

Processor Management / CPU Scheduling:
CPU – I/O Basic Cycle, process state, process control block, Scheduling, Queue, Schedulers, Scheduling Algorithms, Performance criteria, FCFS, SJF, Priority, SRTF, Round Robin, Multi – Levels users Algorithm.

UNIT – II

Memory Management:
Concept of Relocation, Swapping, backing storage, swap time, MFT, MFT job scheduling, region size selection, memory fragmentation, MVT, MVT job scheduling compaction, paging, segmentation.

Virtual Memory:

UNIT – III

Device Management:
I/O and device management physical characteristics, FCFS, SSTF, SCAN, CSCAN.

File Management:
Disk and File Management.

Deadlocks:
Definition, Necessary condition for deadlock, Deadlock Prevention Mutual exclusion, Hold and wait, No pre–emption, circular wait Banker’s algorithms, Recovery from deadlock, semaphores.

References:
B.Sc. (Information Technology) Semester – V

Paper – III: E–Business

Time: 3 Hrs.  Max. Marks: 100

Instructions for the Paper Setters:-

Note: 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 100.

2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT – I

E – Commerce:
Its definition, aims, process tools and results, EDI, VAN’s and internet as Promoters, Types of E – Commerce, Commerce – net.

Steps to Start E – Commerce:
H/W & S/W Requirements, steps involved in opening your own online business.

EDI:
EDI Vs Traditional Systems, EDI enabled procurement process, components of EDI system, EDI implementation issues.

UNIT – II

Concerns for E – Commerce:
Basic challenges to E – Commerce, Technological, legal and regulators heads, Internet Bandwidth & Technological Issues.


Re – Engineering for Change:
Business process re – engineering BPR, Methodology Planning Methods for change to EC / EDI.

UNIT – III

Case Studies: To demonstrate usefulness of E – Commerce in various business areas.
Banks, Reservations, E – Governance, supply – chain, Management, manufacturing, retailing and online – publishing.
B.Sc. (Information Technology) Semester – V

E – Commerce in India:
EDI service providers in India, EDI Projects in the Government regulatory agencies. The Internet in India, laws for E – Commerce in India.

Reference:

E – Commerce – The Cutting Edge of Business.
Kamlesh K. Bajaj.
Debmani Nag.
Time: 3 Hours

Practical Lab: Computer Networks
B.Sc. (Information Technology) Semester – V

Paper – V

Time: 3 Hours

M.M.: 50

Practical Lab: Operating Systems
### B.Sc. (Information Technology) Semester – VI

#### SCHEME

#### Semester – VI:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Subjects</th>
<th>M. Marks</th>
</tr>
</thead>
</table>
| **Paper – I & II:**  
(Will be based on any of the two specialization options) | Option(I): Computer Graphics  
Paper – I: Computer Graphics  
Paper – II: Applications of Computer Graphics in C++/C | 75  
25 |
| | Option(II): Network Management  
Paper – I: Network Operating System/Client Server Application  
Paper – II: Practical Lab based on NOS | 75  
25 |
| **Paper – III:** | Project | 300 |
B.Sc. (Information Technology) Semester – VI


Time: 3 Hrs.  M.M. 75

Instructions for the Paper Setters:-

Note : 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 100.

2. The student can use only Non-programmable & Non-storage type Calculator.

UNIT-I

Preliminaries
Basics of Computer Graphics, Computer graphics Hardware and Software.
2D Primitives
Line drawing, circle drawing and simple line clipping algorithms.

UNIT-II

2D-Transformations
Simple 2D-Transformations and their different representations, composite 2D-Transformations.
3D-Transformations
Simple 3D-Transformations, composite 3D-Transformations.

UNIT-III

Hidden Surfaces
Depth comparisons, Z-buffer algorithm, Scan line algorithms.
Projections
Parallel Projections, Perspective Projections, Oblique Projections.

References:

B.Sc. (Information Technology) Semester – VI

Option I: (Paper – II)

Time: 3 Hours  M.M.: 25

Practical Lab: Applications of Computer Graphics in C++/C
B.Sc. (Information Technology) Semester – VI


Networking Operating System/Client–Server Application

Time: 3 Hours  Max. Marks: 75

Instructions for the Paper Setters:-

Note : 1. In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks. The maximum marks of the paper is 100.
2. The student can use only Non–programmable & Non–storage type Calculator.

UNIT – I


UNIT – II


UNIT – III


References:-

1. MCSA/MCSE; Exam 70–291, Implementing, Managing and Maintaining a Windows Server 2003
B.Sc. (Information Technology) Semester – VI

Option(II): Paper – II: Practical Lab: Based on NOS

Time: 3 Hours                        Max. Marks: 25

Lab: Networking O.S./Client–Server Lab.

Designing of homogenous and heterogenous lab.

Creating Windows 95/NT/Novell Netware Server.

Creating of Proxy Server.

Creating of Database Server.
General Instructions:

1. A software module based on the work done in the entire course is to be developed.
2. The soft copy of the module shall be submitted to the College/Institute till April 30.
3. The software module shall be developed in groups, consisting of at most two students in a group.
4. The respective college shall depute guide(s)/supervisor(s) under whose supervision the software module shall be developed. The guide/supervisor shall clarify that the work done is original & authenticated. The certificate found to be incorrect at any stage shall attract the proceedings against all the stakeholders, as per the University rules.
5. The evaluation of the module shall be done as per the common ordinance of UG/PG w.e.f. 2012-2013 under semester system.